REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 1, 4, 6 - 8, 11, 12, 14 - 17, and 24 are pending in the application. Currently, all claims have been rejected.

By the present amendment, claim 8 has been amended.

In the office action mailed December 13, 2007, claims 1, 4, 6 - 8, 11, 12, and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over either Terpay, Kirtchick, Kempe, Schneider or Lirones et al. in view of Barbist et al.; claims 14, 15, and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over either Terpay, Kirtchick, Kempe, Schneider or Lirones et al. in view of Barbist et al. and further in view of Chen et al.; and claim 24 was rejected under 35 U.S.C. 103(a) as being unpatentable over either Terpay, Kirtchick, Kempe, Schneider or Lirones et al. in view of Barbist et al. and further in view of either Hirakis, Lucko et al. or Burd and Rigney et al.

The foregoing rejections are respectfully traversed with respect to the instant response.

Claim 1 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means being a coating consisting of aluminum silicate. Claim 1 is allowable over the combination of either Terpay, Kirtchick, Kempe, Schneider, or Lirones et al. in view of Barbist because none of the cited and applied references teaches, suggests or discloses forming the claimed oxidation resistance and protection means from a coating consisting of aluminum silicate. The Barbist reference relied upon by the Examiner is clear that the oxidation protective layer is made of silicides or aluminides (see column 2, lines 6 - 7). There is nothing in the Barbist references which would show that Barbist understood that aluminum silicate would be an advantageous coating and provide oxidation resistance and protection means to a refractory metal core. Thus, Barbist is not an enabling reference since Barbist is not in possession of the claimed invention. In fact, Barbist is a reference which teaches away from the claimed coating.

The formula for aluminum silicate is Al_2SiO_5. The Barbist reference is clear in column 2, lines 53 - 59, as to what constitutes an aluminide and a silicide. Nowhere in the list of elements is O. There is no possible way that Barbist teaches or suggests the use of aluminum silicate as a coating.

Claim 4 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means being a coating consisting of zirconium silicate. Once again, none of the cited and applied references teaches, suggests or discloses forming the oxidation resistance and protection means from a coating consisting of zirconium silicate. The words "zirconium silicate" are not to be found anywhere in Barbist et al. For the reasons set forth above, Barbist simply does not enable or render obvious the claimed invention. In fact, Barbist teaches away from the claimed invention. Thus, claim 4 is allowable over the cited and applied references.

Claim 8 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction dissolution during casting, said oxidation resistance and protection means being a coating consisting of an oxide selected from the group consisting of calcia and magnesia. None of the cited and applied references teaches or suggests a coating consisting of an oxide selected from the group consisting of calcia and magnesia. Thus, claim 8 is allowable over the cited and applied references.

The Examiner's comments about Lirones et al. are now moot in view of the amendment to claim 8.

Claim 11 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means comprising a coating contacting said refractory metal core, said coating comprising a nitride selected from the group consisting of silicon nitride, sialon, and mixtures thereof. None of the cited and applied references teaches, suggests or discloses a coating comprising a nitride selected from the group consisting of silicon nitride, sialon, and mixtures thereof. The only nitrides disclosed in Barbist et al. are TiN, HfN and ZrN. There is no disclosure of the claimed nitrides. Thus, there is no teaching or suggestion of the claimed invention. Thus, none of the references enable or render obvious the claimed invention set forth in claim 11.

Claim 12 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means comprising a coating adjacent said core, said coating comprising a carbide selected from the group consisting of silicon carbide, titanium carbide, and mixtures thereof. None of the cited and applied references teaches, suggests or discloses a coating comprising a carbide selected from the group consisting of silicon carbide, titanium carbide, and mixtures thereof. Thus, none of the references enable or render obvious the claimed invention set forth in claim 12.

Claim 16 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means comprising a coating, said coating comprising a ceramic coating and a layer between the refractory metal forming the refractory metal core and said ceramic coating, wherein said layer is formed from a material selected from the group consisting of TiC, and Si_3N_4. None of the cited and applied references teaches, suggests or discloses an intermediate layer formed from a material selected from the group consisting of TiC and Si_3N_4. Thus, none of the references enable the claimed invention set forth in claim 16.

Claims 6 and 7 are allowable for the same reasons as their parent claims as well as on their own accord.

Claim 14 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means comprising a coating, said coating comprising a ceramic coating and a layer between the refractory metal forming the refractory metal core and said ceramic coating, wherein said layer abuts said refractory metal and consists of a metal selected from the group consisting of nickel, platinum, chromium, silicon, and alloys thereof. Claim 14 is allowable because none of the cited and applied references teaches the claimed coating wherein the layer consisting of a metal selected from the group consisting of nickel, platinum, chromium, silicon, and alloys thereof, abuts the refractory metal forming the refractory metal core. The Chen et al. reference is not directed to a casting system and therefore provides absolutely no teachings of how to form an oxidation resistant and shell fire protection coating for a refractory metal core. Chen et al. applies a thin layer of metal over a surface of a turbine engine component prior to the formation of a protective aluminide coating. There is no teaching in Chen et al. of applying the layer to abut a refractory metal component.

Claim 17 is allowable for the same reasons as claim 14 as well as on its own accord.

Claim 15 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said oxidation resistance and protection means comprising a coating, said coating comprising a ceramic coating and a layer between the refractory metal forming the refractory metal core and said ceramic coating, wherein said layer abuts said refractory metal and is formed from NiAl. Claim 15 is allowable because none of the cited and applied references teaches the claimed coating wherein the layer being formed from NiAl abuts the refractory metal forming the refractory metal core. Again, the Chen et al. reference is not directed to a casting system and therefore provides absolutely no teachings of how to form an oxidation resistant and shell fire protection coating for a refractory metal core. There is no teaching in Chen et al. of applying the layer to abut a refractory metal component.

Claim 24 is directed to a casting system including a refractory metal core, said refractory metal core having means for providing oxidation resistance during shell fire and protection against reaction/dissolution during casting, said refractory metal core being formed from molybdenum and having an etched surface and said oxidation resistance and protection providing means overlaying said etched surface and comprising a coating, said coating consisting of alternating layers of alumina and a material selected from the group consisting of TiCN and zirconia. The rejection of claim 24 is duly noted, however, at best, it is nothing more than the Examiner finding the claimed elements in the prior art. Merely finding the individual elements in the prior art is not the basis for an obviousness rejection. It is submitted that one of ordinary skill in the art would not make the combination of references made by the Examiner. The rejection is nothing more than hindsight rejection and should be withdrawn.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

The instant amendment should be entered since it reduces the issues for appeal. Further, the amendment to the claim does not require the Examiner to conduct any additional search or cause any further consideration on the part of the Examiner. Still further, the amendment does not contain any new matter.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, the Examiner is hereby invited to contact Applicants' attorney at the telephone number listed below.

A notice of appeal is appended hereto in the event that the Examiner maintains the rejections of record.

No appeal fee is due since Applicants have previously paid such a fee in this case and the application was not allowed to proceed to appeal. Should the Director determine that a fee is due, he is hereby authorized to charge said fee to Deposit Account No. 21-0279.

Respectfully submitted,

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I, Antoinette Sullo, hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313" on **March 13, 2008**.

Antoinette Sullo